**The Ectatic Aorta: No Benefit in Surveillance**

Gibbs DMR, Brown MJ, Hussey G, Naylor AR. Ann Vasc Surg 2010;24: 908-11.

**Conclusion:** Patients with an abdominal aorta diameter of between 25 and 30 mm identified on a screening study for possible abdominal aortic aneurysm (AAA) do not require further surveillance for at least 5 years.

**Summary:** Ultrasound screening of men aged ≥65 years appears effective in reducing AAA-related mortality and cost (Ashton HA, et al, Lancet 2002:360:1531-9). There is, however, little consensus on follow-up of the so-called ectatic aorta. This study defined an ectatic aorta as 25 to 30 mm in anterior-posterior (AP) diameter. As many as one-third of the patients screened for AAA will have an "ectatic" aorta (Devaraj S, et al, Ann R Coll Surg Engl 2008;90:477-82). The authors sought to determine if patients with aortic diameters between 25 and 30 mm should have continued surveillance or if they could be discharged from follow-up ultrasound screening.

This was a retrospective study of data prospectively collected as part of a Liecestershire AAA screening program. The program has been in place since 1996 and screens men aged >65 years with a single ultrasound scan of the aorta. Patients with an AP diameter of the aorta <25 mm are discharged from further screening. Those with aortas >25 mm in diameter enter the surveillance program, with ultrasound scans every 12 months in patients with aortas of 25 to 29 mm, every 6 months in patients with aortas between 30 and 49 mm, and every 3 months when the aortic diameter is between and 50 and 52 mm. For this study, the authors used patients with an initial AAA diameter of 25 to 30 mm who had undergone two or more surveillance scans. There were 345 patients analyzed and the primary end point was death from AAA rupture, presentation with rupture, or referral for elective repair. The mean follow-up was 4.25 years (range, 1-11 years). At 5 years of surveillance, there was a 97% freedom from death from rupture or referral for repair.

**Comment:** For screening to be both effective and cost effective there must be identification of appropriate subgroups of patients where a reasonable yield of the screening process is anticipated. One can certainly argue over what is "a reasonable yield." However, it is difficult to argue that continued close surveillance of patients with abdominal aortas between 25 and 30 mm has any hope of being cost effective. The information provided here should be useful for those designing and implementing AAA screening programs in their communities.

**Effect of Celiprolol on Prevention of Cardiovascular Events in Vascular Ehlers-Danlos Syndrome: A Prospective Randomized, Open Blinded-Endpoints Trial**

Ong K-T, Perdu J, DeBacker J, et al. Lancet 2010;376:1476-84.

**Conclusion**: Celiprolol appears effective in preventing major complications in patients with vascular Ehlers-Danlos syndrome.

**Summary:** Ehlers-Danlos syndrome is a heterogeneous group of connective tissue disorders. It results from a number of mutations in the *COL3A1* gene that cause defects in pro1 (III) chain of collagen type 2. The vascular form of Ehlers-Danlos is the most severe variant of Ehlers-Danlos and is autosomal dominant. Median survival is 40 to 50 years. Major complications include vascular dissection or rupture or rupture of hollow organs (uterus, intestine). Complications are usually seen by age 20 years and by age 40, 90% of patients have sustained a major event.

Vascular Ehlers-Danlos patients have decreased intima-media thickness (IMT). (Boutouyie P, et al, Circulation 2004;109:1530-35). Decreases in IMT may lead to decreased resistance to mechanical stress. The authors proposed that treatment with celiprolol may prevent vascular events associated with Ehlers-Danlos syndrome by reducing heart rate and therefore pulsatile mechanical stresses on weakened collagen fibers in the arterial wall of patients with Ehlers-Danlos syndrome.

The Beta-Blockers in Ehlers-Danlos Syndrome Treatment (BBEST) trial used a multicenter randomized open-trial design but with blinded evaluation of clinical events. Patients with clinical Ehlers-Danlos syndrome using the Villefranche diagnostic criteria were identified and randomly assigned to treatment with celiprolol or no treatment. There were 53 patients included in the study and 33 had proven mutations in *COL3A1*. Mean age at study entry was 35 ± 12 years. Female/male ratio was 2:1. Fifty-five percent had previous clinical events, and 21% had a family history of clinical events related to Ehlers-Danlos. Patients were randomly assigned to celiprolol or no treatment with stratification by age (≤32 or >32 years). Celiprolol was up titrated every 6 months by steps of 100 mg to a maximum of 400 mg twice daily. Primary end points were arterial events, rupture, or dissection, fatal or not.

Of the 53 patients in the study, 25 were assigned to celiprolol and 28 to the control group. Mean follow up was 47 ± 5 months. The trial was stopped early for treatment benefit. Primary end points were reached by 5 (20%) in celiprolol group and by 14 (50%) in the control group (hazard ratio, 0.36; 95% CI, 0.15-0.88; $P = .040$). Adverse events included severe fatigue in one patient after starting celiprolol at 100 mg daily and mild fatigue in two patients related to dose up titration.

**Comment:** The trial suggests benefit of prevention of major complications of Ehlers-Danlos syndrome in patients with a clinical diagnosis of Ehlers-Danlos. Subgroup analysis indicates equal benefit in patients with and without proven *COL3A1* mutation. The authors found celiprolol did not decrease brachial systolic or diastolic pressures or heart rate, making it unlikely the protective effect of celiprolol was mediated through blood pressure lowering. The authors postulated the mechanism of action of celiprolol in Ehlers-Danlos syndrome may be through effect on transforming growth factor-β and collagen synthesis. Results of the study must be interpreted with caution, because not all patients in the study were positive for proven genetic mutations associated with Ehlers-Danlos syndrome. Nevertheless, all included patients met clinical criteria for Ehlers-Danlos syndrome and the results in the mutation-positive and mutation-negative patients were similar, although that analysis was not prespecified in the study design.

**Late Outcomes of Endovascular and Open Revascularization for Nonatherosclerotic Renal Artery Disease**

Ham SW, Kumar SR, Wang BR, et al. Arch Surg 2010;145:832-9.

**Conclusion:** In patients with nonatherosclerotic renal artery disease (NARAD), open revascularization results in superior 1- and 5-year outcomes compared with endovascular management.

**Summary:** Fibromuscular dysplasia and Takayasu arteritis are the most common etiologies of NARAD leading to hypertension. Open or endovascular revascularization is preferred over medical management alone in patients with severe hypertension associated with NARAD. Percutaneous transluminal angioplasty (PTA) is generally considered first-line therapy for fibromuscular disease, whereas open revascularization is generally thought to be the best treatment for patients with Takayasu arteritis.

The purpose of this report was to evaluate long-term outcomes of endovascular and open treatment of NARAD. This was a retrospective review of 55 patients (47 women), with a mean age of 40 years. Underlying disease processes included Takayasu arteritis in 31 patients and fibromuscular dysplasia in 24. Open revascularization was compared with renal artery PTA, with and without stenting, for primary, primary assisted, and secondary patency rates as well as blood pressure, antihypertensive medication requirements, renal function, and mortality. Among the 79 renal artery interventions performed were 59 aortorenal bypasses (16 ex vivo), 3 visceral-to-renal artery bypasses, 5 nephrectomies, and 12 endovascular percutaneous revascularizations, 4 of which included stent placement. There were no procedural deaths. Mean follow-up was 75 months. Rates of primary patency at 1, 3, and 5 years for any intervention were 87%, 75% and 75%, respectively. Primary, primary assisted, and secondary patency rates were 92%, 86%, and 86%, respectively. Primary patency rates for endovascular interventions at 1, 3, and 5 years were 73%, 49%, and 49%. Primary assisted/secondary patency rates for endovascular interventions were 83%, 83%, and 83% at 1, 3, and 5 years. At 1, 3, and 5 years, primary patency rates for open revascularization were 91%, 80%, and 80%. Primary assisted/secondary patency rates for open interventions at 1, 3 and 5 years were 94%, 87%, and 87%, respectively. Open and endovascular interventions both resulted in improvements in blood pressure and the number of antihypertensive medications compared with preintervention values (all $P < .05$). Revascularization also improved serum creatinine levels and estimated glomerular filtration rate (both $P < .05$). The 5- and 10-year actuarial survival rates were 94% and 78%, respectively.

**Comment:** The authors demonstrated open and endovascular intervention can be safe and effective in management of renal artery-mediated hypertension and renal dysfunction associated with NARAD. The patients are not randomized, and any conclusions are somewhat weakened by the study design, but in general, the data indicate primary open revascularization, when compared with endovascular intervention, results in superior outcome with respect to patency with equivalent safety. The authors' conclusion is that open revascularization should be considered selectively as first-line of therapy for NARAD in the young patient with moderate to complex renal artery disease. This conclusion is clearly suggested but not confirmed by the data.

**Risk of Symptomatic DVT Associated with Peripherally Inserted Central Catheters**

Evans RS, Sharp JH, Linford LH, et al. Chest 2010;138:803-10.

**Conclusion:** Increasing catheter size, prior deep vein thrombosis (DVT), and surgery lasting >1 hour identify patients at risk for peripherally inserted central catheter (PICC)-associated DVT.

**Summary:** PICCs are safe and cost-effective for providing long-term intravenous access. PICC catheters, however, are also associated with the development of catheter-associated DVT. The authors sought to identify risk factors for PICC-associated DVT. This was a 1-year prospective observational study of PICC insertions in a 456-bed tertiary referral hospital with a level 1 trauma center. All patients with one or more PICC insertions were included. PICC catheters were placed by certified PICC team members using a consistent and replicated approach for vein selection and insertion. A